

The Paryphantidae of New Zealand.

III. Further New Species of Paryphanta and Wainuia.

By A. W. B. POWELL, Conchologist and Palaeontologist.

Since the publication of my previous papers on the *Paryphantidae* (1930 and 1932), further material has steadily accumulated, including several new species, and these are now made the subject of my third contribution on the family.

The receipt of numerous lots of specimens from a wide range of localities has indicated more clearly the actual topographic boundaries of many of the species, particularly those of the *gilliesi* series from West Nelson.

A synopsis of the New Zealand members of the *Paryphantidae*, with the locality range for each species, is given at the end of this paper.

It may be objected that my naming of some of the forms of *Paryphanta*, based solely upon colour pattern, amounts to species splitting and that such forms have no real taxonomic value. This may be so, yet on the other hand these colour forms are constant within their respective distributional areas, which are segregated by definite topographic boundaries; therefore some method of nomination is necessary. Simpson has attempted to forestall the same criticism in his excellent paper on "The Florida Tree Snails of the Genus *Liguus*" (1929, Proc. U.S. Nat. Mus., vol. 73, Art. 20, p. 2). He admits that many of the forms he has named are, doubtless, fertile hybrids, but nevertheless they are important in elucidating the story of past development, migration and distribution.

ACKNOWLEDGMENTS.

The writer is indebted to Dr. A. Clark, Mr. E. B. Langford, Mr. R. E. Clouston, Mr. L. J. Dumbleton, Mrs. M. Mouat, Mr. K. Rudall, Mr. Wm. C. Davies, Mr. E. S. Gourlay, Mr. C. Weetman, Mr. H. Wellman, and Mr. H. Osmer, for the collections of specimens upon which this paper is based.

THE HOCHSTETTERI SERIES.

Genus PARYPHANTA Albers 1850.

Type: NANINA BUSBYI Gray.

***Paryphanta hochstetteri consobrina* n. subsp. Pl. 7, fig. 3.**

Shell of similar size and shape to *hochstetteri obscura* and *hochstetteri bicolor*, being an intermediate form, differing in the colour pattern of the base. This basal colour pattern, however,

is constant in the large number of specimens seen, all of which were from mountainous country between the respective areas populated by *obscura* and *bicolor*. The distributional area for *consobrina* is isolated by the Pelorus and Wairau Rivers, Marlborough, and includes Mt. Duppa and The Fishtail.

Ground colour of dorsal surface of shell ranging from cinnamon-brown to buckthorn brown (Pl. 15), with the exception of the protoconch, which runs through light cadmium and analine yellow to sulphine yellow (Pl. 4). On the ventral surface the ground colour is ochraceous-tawny diffused with russet towards an umbilical dark zone of mars brown (Pl. 15). The dorsal surface is variably spirally banded with mars brown, there being usually a few fairly wide bands at the periphery. In the holotype there is a wide band at the periphery and two lesser bands above it, as well as some finer and indistinct spiral lines. On the base the dark umbilical zone occupies two thirds the major diameter of the shell. Apart from this there are several (five in the holotype) narrow bands of a paler tawny shade (Pl. 15, Ridgway's Color Standards and Nomenclature).

This subspecies may be likened to a *P. hochstetteri bicolor* with a much larger umbilical dark patch and a warm brown rather than a yellowish-olive ground colour. On the other hand *P. hochstetteri obscura* differs in having almost the whole of the base dark and of different tone, being dark olive to almost black.

Major diameter, 59 mm.; minimum diameter, 49.5 mm.; height, 28 mm. (holotype).

Holotype: Presented to the Auckland Museum by Mr. Wm. C. Davies, Nelson.

Habitat: Mt. Duppa, 2,500-3,000 feet, on spur running towards the Whangamoia Saddle, Marlborough (Mr. Wastney) (type locality): Also Mt. Duppa, 1,800-3,000 feet (Mr. E. S. Gourlay, Nelson): Mt. Fishtail, 3,000 feet (Mr. C. Weetman).

THE LIGNARIA SERIES.

***Paryphanta annectens*, n. sp.** Pl. 7, figs. 4, 5 and 7.

Shell large, almost the size of *hochstetteri* and proportioned as that species (see Powell, 1930, fig. 5, A, p. 34). Surface smooth except for numerous axial growth ridges and weak spiral striae, the latter confined to the early spire whorls. Parietal callus and the inside of the outer-lip covered with fine granulations. Whorls slowly increasing, $5\frac{1}{2}$, including a small almost flat protoconch of $1\frac{1}{2}$ whorls, polished but showing faint traces of irregular spiral striae. Spire dome-shaped, showing in profile about 5 mm. above the body-whorl. The suture is deeply impressed and bends down slightly towards the aperture. Umbilicus about one fifth the major diameter of the base. Peristome discontinuous, thin, advancing above, and curved slightly downwards. General ground colour sandford's-brown (Pl. 2), becoming slightly paler above towards tawny-olive (Pl. 39); very closely radially striped indiscriminately with narrow bands of claret-brown (Pl. 1),

warm sepia (Pl. 29), and black; protoconch analine-yellow (Pl. 4); parietal callus sorghum-brown (Pl. 2) with granulations lighter; interior of aperture deep slaty brown (Pl. 50, Ridgway's Color Standards and Nomenclature, 1912).

Major diameter, 63.5 mm.; minimum diameter, 53.5 mm.; height, 34 mm. (holotype).

Major diameter, 73.0 mm.; minimum diameter, 62.0 mm.; height, 40.5 mm. (Mrs. Mouat's spec.).

Major diameter, 69.0 mm.; minimum diameter, 58.0 mm.; height, 38.0 mm. (Mrs. Mouat's spec.).

Holotype: Presented to the Auckland Museum by Mr. R. E. Clouston.

Habitat: Gunner Downs, between the Karamea and Heaphy Rivers at between 2,000 and 2,500 feet, West Nelson. (Mr. R. E. Clouston.) "From south of Government Hut, 40 miles from Bainham, collected by Mr. W. Bennett during geological survey of the district under Dr. J. Mackintosh Bell (1906-1907)." Specimens in the collection of Mrs. M. Mouat. North of Karamea (probably from the Gunner Downs), Mr. Wm. C. Davies, Nelson.

This species is of great interest, for it links up the West Coast *lignaria* series with the West Nelson *gilliesi* series. In shape and axial banding *annectens* is close to typical *lignaria* (Pl. 7, fig. 8) but differs in the presence of parietal granulations, which have been observed hitherto only in *gilliesi* and its relatives.

Paryphanta mouatae n. sp. Pl. 8, figs. 7 and 8.

Shell between *annectens* and *superba*, but more the size of the former. Whorls $5\frac{1}{4}$, slowly increasing, and including the usual protoconch of $1\frac{1}{2}$ whorls, polished but showing faint traces of irregular spiral striae. Ground colour buckthorn-brown to cinnamon-brown, rather densely striped with narrow, somewhat irregular axial streaks of russet, mars-brown and an occasional greenish streak. Protoconch ochraceous-tawny (Pl. 15, Ridgway's Colour Standards and Nomenclature, 1912), followed by $1\frac{1}{2}$ whorls of dark-sepia. Parietal callus mars-brown. The parietal callus shows faint traces of fine granulations. The surface of the shell is glossy, with only a few spiral striations on the early whorls, as well as weakly impressed axial growth lines. In details of shape *mouatae* resembles *annectens* and *superba*.

Major diameter, 50 mm.; minimum diameter, 42.5 mm.; height, 27 mm. (holotype).

Major diameter, 55 mm.; minimum diameter, 45 mm.; height, 28 mm. (paratype).

Holotype: Presented to the Auckland Museum by Mrs. M. Mouat.

Habitat. Goulard Downs, between 15 Mile Creek and Saxon Creek, West Nelson. (Mrs. M. Mouat). Headwaters of Tony

Creek at about 2,000 feet, and Weka Creek at 2,000 feet, Goulard Downs. (Mr. L. J. Dumbleton).

This is an extremely interesting link between the uniformly coloured *superba* and the axially banded *annectens*, described herein. From *superba*, *mouatae* differs in being smaller and of a much darker ground colour, with a constant pattern of numerous reddish-brown narrow axial streaks, as well as subobsolete granules on the parietal callus. In *annectens* the axial banding is much more definite than in *mouatae*, the growth lines are stronger, and the parietal callus is decidedly granulate. Although *superba* is unicoloured it seems to be nearer allied to *mouatae* than to *hochstetteri*, and should be classed with the *lignaria* series rather than with the spirally banded *hochstetteri* series.

Hybridization among *annectens*, *mouatae* and *superba* is possible, as their respective distributional areas converge at the Goulard Downs. So far, however, each is clearly defined in its respective area.

Paryphanta rossiana Powell 1930.

1930. *Paryphanta rossiana* Powell. Rec. Auck. Inst. & Mus., Vol. 1, No. 1, p. 44, Pl. 4, figs. 4, 5 and 6.

The range of this species, described from a single specimen obtained at 2,900 feet on Mt. Greenland, Ross, has been extended by the finding of specimens by Mr. H. Wellmann, from the summit of Mt. Rangitoto, six miles south of Ross.

2. THE GILLIESI SERIES.

Further material from the Whakamarama Range and West Haven coastal strip, West Nelson, has revealed the presence of another good subspecies of the *gilliesi* series, and also has demonstrated the necessity for raising the status of my *gilliesi* (variety A) (Powell 1930, p. 46) to that of a regional subspecies, which is accordingly named and described below.

The four recognisably distinct subspecific forms of *gilliesi* occupy restricted sections of the Whakamarama-West Haven area and are bounded by definite topographic boundaries, which are as follows:—

1. *P. gilliesi gilliesi* Smith 1880. On the high country of the northern extremity of the Whakamarama Range south to the Kaituna-Paturau transverse river systems which break the high country continuity of the Range.
2. *P. gilliesi subfusca* Powell 1930. On the low coastal country on the northern side of the entrance to West Haven Inlet, separated from the Whakamarama Range by the tidal waters of West Haven.
3. *P. gilliesi kahurangica* n. subsp. Coastal from Kahurangi Point to Paturau River and thence across the low saddle in the Whakamarama Range to the headwaters of the Kaituna Valley.

4. *P. gilliesi montana* n. subsp. On the high country of the Whakamarama Range to the south of the Kaituna-Paturau River break.

The distinguishing shell features of the four subspecific forms of *gilliesi* are as follows.

A. Parietal callus coarsely granulated.

(a) Under side bright red-brown. Large umbilical dark area with clearly defined edge. *gilliesi gilliesi*.

(b) Under side olive-brown, gradually deepening to dark brown towards umbilicus. No clear cut zone or bands. *gilliesi subfusca*.

B. Parietal callus finely granulated.

(a) Under side bright red-brown as species, but without the dark umbilical area. *gilliesi kahurangica*.

(b) Under side dark red-brown. Large umbilical darker area with clearly defined edge. Shell more tightly coiled, whorls more inflated and spire lower than above three subspecies. *gilliesi montana*.

Paryphanta gilliesi kahurangica n. subsp. Pl. 8, figs. 1 and 2.

1930. *Paryphanta gilliesi* (Variety A) Powell. Rec. Auck. Inst. Mus., Vol. 1, No. 1, p. 46.

Shell of similar size, shape and ground colour to the typical species, but with a different pattern on the base, and much finer parietal granulation. The base is reddish brown (near to Hay's russet, Pl. 14, Ridgway) as in the typical series, but lacks the characteristic central dark area. There are four or five and occasionally more strong dark-brown almost black peripheral bands, the lowest of which is situated about one third of the radius of the base in from the periphery.

Major diameter, 48 mm.; minimum diameter, 40 mm.; height, 25 mm. (holotype).

Major diameter, 54 mm.; minimum diameter, 45 mm.; height, 27.5 mm. (largest specimen).

Habitat: Paturau River, West Coast, Nelson (type) (Mr. Donald McKenzie, 1928); Kahurangi Point (Captain J. Bollons); at headwaters of Kaituna River, Whakamarama Range (Mrs. M. Mouat, 1935).

Quite apart from the colour pattern, the fineness of the parietal granules of this species make it readily distinguishable from *gilliesi* typical, and *gilliesi subfusca*.

Paryphanta gilliesi montana n. subsp. Pl. 8, figs. 9 and 10.

Shell of similar size and colour to the typical species, but more inflated and more tightly coiled, and with a more depressed

spire. The inflated, deeper whorls* result in a more rounded aperture, and the tight coiling, in a slightly narrower steeper-sided umbilicus. A good idea of the relative shell proportions in *gilliesi*, *gilliesi kahurangica* and *gilliesi montana* is shown by the following table:—

1. Major diameter.	2. Minimum diameter.	3. Depth of body-whorl*	4. Total height of shell.	
46 mm.	38.5 mm.	17.5 mm.	23.5 mm.	<i>gilliesi</i>
46 mm.	39.0 mm.	18.0 mm.	24.0 mm.	<i>montana</i> (holotype)
48.0 mm.	40.0 mm.	16.5 mm.	25.0 mm.	<i>gilliesi</i>
45.5 mm.	37.5 mm.	16.5 mm.	23.5 mm.	<i>kahurangica</i>
45.5 mm.	36.5 mm.	15.5 mm.	23.0 mm.	<i>gilliesi</i>
48.0 mm.	39.0 mm.	16.5 mm.	24.5 mm.	<i>gilliesi</i>

*Depth of whorl is taken from the maximum vertical measurement of the body-whorl at a point opposite to the aperture. It is indicated by the measurement "17 mm." on my diagram B, Fig. 5 (1930, Rec. Auck. Inst. Mus., Vol. 1, No. 1, p. 34).

Colour of protoconch yellow ochre to buckthorn brown (Pl. 15) tawny-olive (Pl. 29), hazel (Pl. 14), base dark reddish-brown (between Hay's russet and liver brown, Pl. 14, Ridgway), with a dark-brown almost black clean edged umbilical zone which covers most of the base. There is also a wide peripheral dark band and between it and the umbilical zone a subsidiary band, followed by a thin line (in the holotype). Paratypes have the wide peripheral band constant, but the subsidiary bands are variable. The dorsal surface is marked with numerous fine dark-brown spiral lines and a few heavier and irregularly placed ones.

As in *kahurangica*, *montana* has a similar finely granulated parietal callus, quite distinct from that of both *gilliesi* and *gilliesi subfusca*. from the northern end of the Whakamarama Range.

Habitat: Mt. Stevens, Whakamarama Range, at about 3,800 feet, around roots of "tussock." Collected by Mr. E. B. Langford, 28/3/1932.

The eight members of the *gilliesi* series may be conveniently grouped as follows, according to the nature of the parietal callus.

(A) Parietal callus coarsely granulated.

1. *gilliesi gilliesi* Smith 1880.
2. *gilliesi subfusca* Powell 1930.

(B) Parietal callus finely granulated.

3. *gilliesi kahurangica* n. sp.
4. *gilliesi montana* n. sp.

(C) Parietal callus sparsely granulated.

5. *compta* Powell 1930.

(D) Parietal callus smooth.

6. *jamesoni* n. sp.
7. *fallax* Powell 1930.
8. *traversi* Powell 1930.

Species one to seven are restricted to small areas in the north-west of Nelson Province, and eight, the North Island *traversi*, has evidently arisen from *gilliesi* series stock isolated in the North Island by the comparatively recent formation of Cook Strait. (See Powell 1930, Rec. Auck. Inst. Mus., Vol. 1, No. 1, p. 50).

Paryphanta jamesoni n. sp. Pl. 8, figs. 3 and 4.

Shell of moderate size, belonging to the "*gilliesi* series" and proportioned as shown in diagram B, Fig. 5 (see Powell, 1930, p. 34). Dorsal surface sculptured with minute wavy spiral striae abruptly terminated at the periphery. Ventral surface smooth and glossy. Whorls five, slowly increasing, including a small almost flat protoconch of $1\frac{1}{2}$ whorls, polished but minutely wrinkled and striated. Parietal callus quite smooth. General ground colour russet (Pl. 15), spirally banded and radially striped with darker brown. The spiral bands are narrow and chestnut-brown (Pl. 14), there being seven on the dorsal surface, two broader almost black bands at the periphery, below which spiral bands continue, four remaining distinct although gradually becoming paler, until they disappear over the rest of the base. The axial stripes show stronger on the ventral surface and are indiscriminately chestnut-brown or black. Aperture and parietal callus dark vinaceous gray (Pl. 50) to vinaceous-slate (Pl. 50). Protoconch olive-ochre (Pl. 30, Ridgway's color standards and color nomenclature, 1912).

Major diameter, 45.5 mm.; minimum diameter, 38 mm.; height, 24 mm. (Holotype).

Holotype presented to Auckland Museum by Mrs. M. Mouat.

Habitat: Blue Duck Creek, near hut at about 2069 feet, Gouland Downs, West Nelson (holotype). Other specimens from five miles further along track towards Heaphy River. Collected for Mrs. M. Mouat by Mr. Jameson, of Collingwood.

This species is distinguished by the well marked radial stripes in addition to the spiral banding, and in the smooth parietal callus. It seems nearest to *P. compta* Powell 1930, for that species shows a faint tendency towards axial stripes; the parietal callus, however, is not smooth but has sparse granulations; the ground colour and spiral lines are different also.

Genus *WAINUIA* Powell 1930.

Rec. Auck. Inst. & Mus. I., No. 1, p. 51.

Type (original designation): *HELIX URNULA* Pfeiffer.***Wainuia clarki*** n. sp. Pl. 9, figs. 4 and 5.

Shell intermediate in size between *urnula* and *edwardi*, the only other members of the genus so far known. Whorls four, including a typical flattened protoconch of $1\frac{1}{2}$ whorls sculptured with fine radial arcuate striae, interrupted slightly by four indistinct spiral striations. Spire almost one fourth height of aperture. Adult whorls obliquely furrowed and malleated. Suture rather deep, crenulated by short arcuate folds. Umbilicus narrow, one eighth the major diameter of the shell. General ground colour dark warm sepia; protoconch pale yellow; inner lip callus bluish white.

From both *urnula* and *edwardi*, *clarki* differs in being more tightly coiled, resulting in the apex being a little nearer centre, and the aperture being squarish rather than oblong.

Major diameter 26 mm.; min. diam. 20.5 mm.; height 18.5 mm. (holotype).

Holotype presented to the Auckland Museum by Dr. A. G. Clark, of Napier.

Habitat: Motutaiko Island, Lake Taupo.

The presence of a *Wainuia* in the Taupo area is difficult to explain, particularly in view of some details of the geology of Motutaiko, kindly given me by Mr. Norman H. Taylor, of the New Zealand Geological Survey. He explains that Motutaiko probably has always been an island, and that it is a rhyolitic intrusion of the Hapurangi series roughly equal in age to the Patetere rhyolites of Mamaku. Mr. Taylor also considers that no life on Motutaiko could have survived the Taupo Pumice Shower which may have occurred less than 5000 years ago. The other two species of *Wainuia* are distributed along mountain systems of Trias-Jura age, and the nearest occurrence of the genus to the Taupo species, so far as is known, is on the Ruahine Range. It is more than probable, however, that further occurrences of the genus will be located in the intervening country, and until this area is investigated one cannot speculate further on the origin of the Taupo species. Should *urnula* or a related species be found on the high country adjacent to Taupo we have the interesting inference of the origin of a new species in approximately 5000 years.

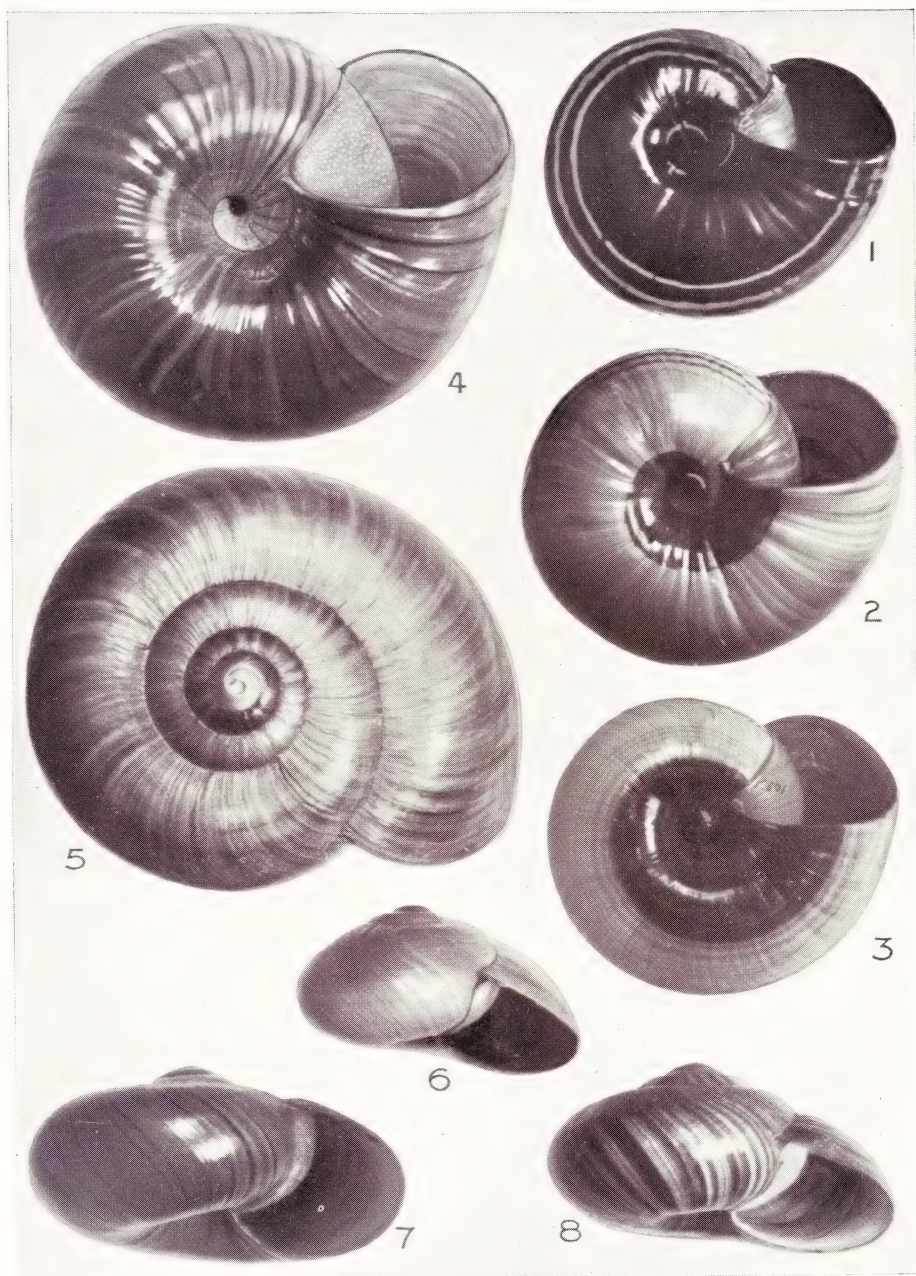
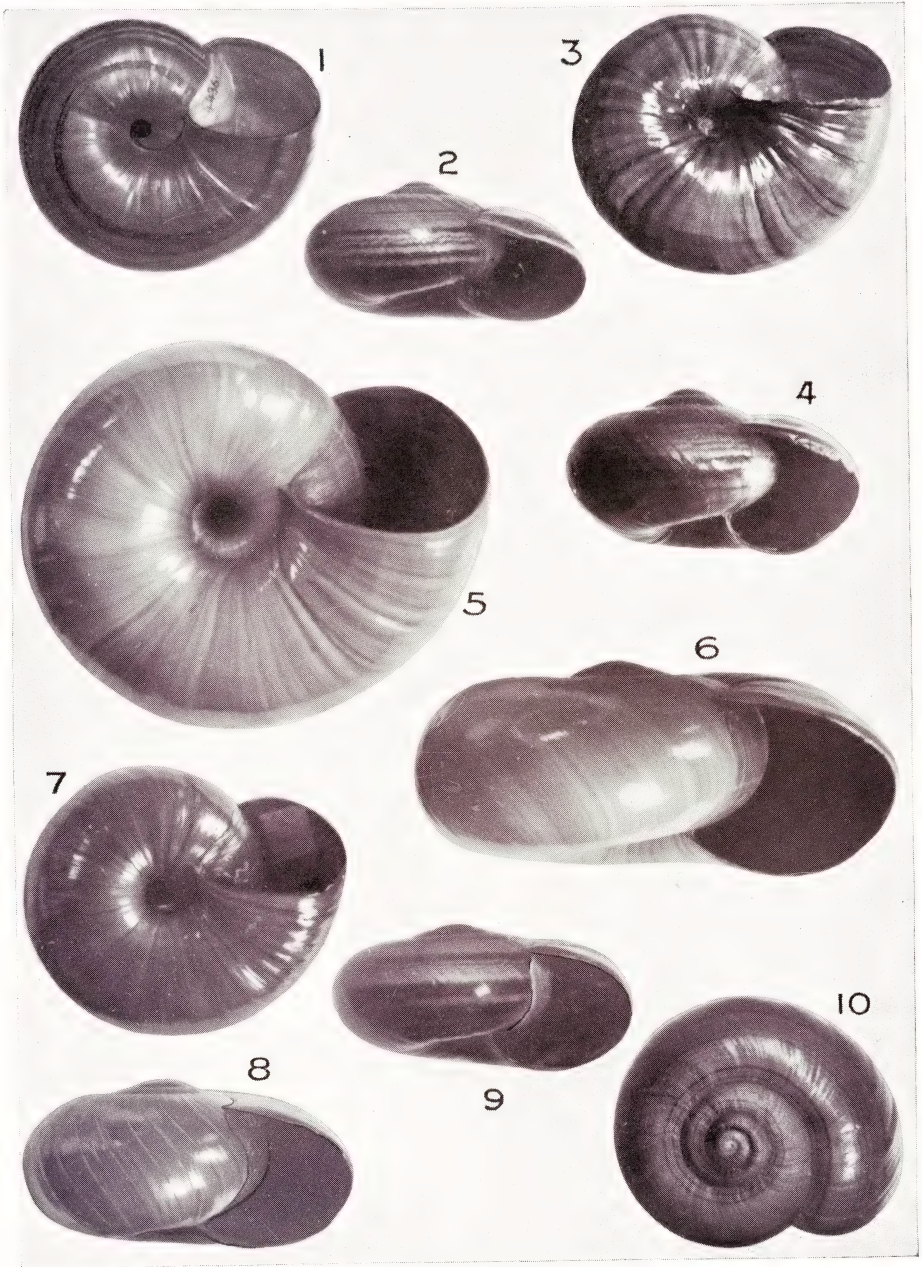


Fig. 1. *Paryphanta hochstetteri obscura* Beutler 1901 (topotype).
 Fig. 2. *Paryphanta hochstetteri bicolor* Powell 1930 (holotype).
 Fig. 3. *Paryphanta hochstetteri consobrina* n. subsp. (holotype).
 Figs. 4 and 5. *Paryphanta annectens* n. sp. (holotype).
 Fig. 6. *Paryphanta unicolorata* Powell 1930 (holotype).
 Fig. 7. *Paryphanta annectens* n. sp. (paratype).
 Fig. 8. *Paryphanta lignaria* Hutton 1888. St. Helens, Mokihiini.



Figs. 1 and 2. *Paryphanta gillicsi kahurangica* n. subsp. (holotype).
 Fig. 3. *Paryphanta jamesoni* n. sp. (holotype).
 Fig. 4. *Paryphanta jamesoni* n. sp. (paratype).
 Figs. 5 and 6. *Paryphanta superba* Powell 1930 (topotype).
 Figs. 7 and 8. *Paryphanta mouatae* n. sp. (holotype).
 Figs. 9 and 10. *Paryphanta gillicsi montana* n. subsp. (holotype).

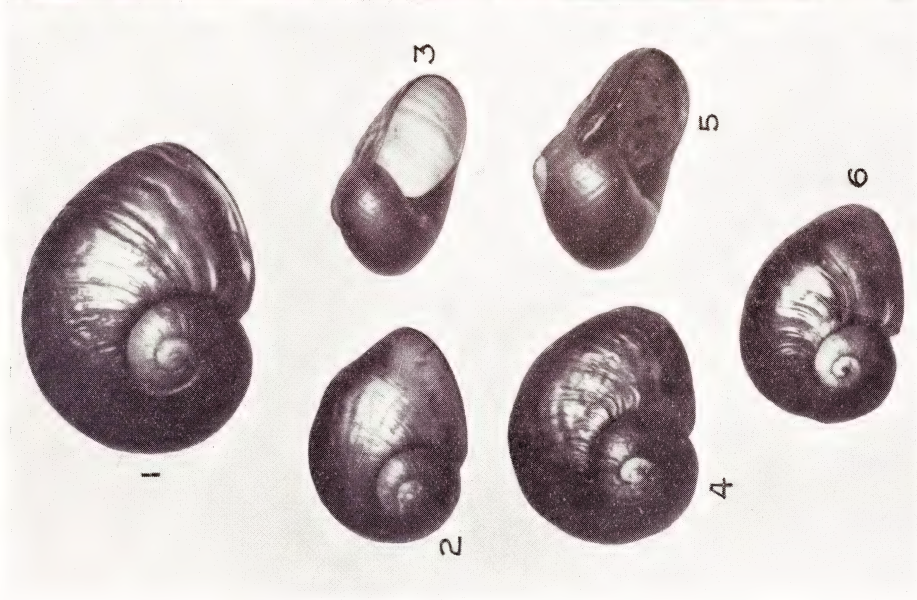


Fig. 1. *Waimuia edwardsi* (Suter 1899) (paratype).
 Figs. 2 and 3. *Waimuia urnula* (Pfeiffer 1855). Wainuiomata, Wellington.
 Figs. 4 and 5. *Waimuia clarki* n. sp. (holotype).
 Fig. 6. *Waimuia* aff. *urnula* (Pfeiffer 1855). Umutoi, Ruahine Ranges.
 Fig. 7. *Waimuia edwardsi* (Suter 1899). Kaikoura Ranges.

Wm. C. Davies, photo.

Wainuia aff urnula (Pfeiffer 1855). Pl. 9, fig. 6.

Mr. K. Rudall collected a dead specimen and some fragments of a *Wainuia* from Umutoi, 4500 feet, Ruahine Range, which are of interest as they are from a locality intermediate between the Rimutaka-Tararua system, where *urnula* occurs, and Taupo, the locality for the new species described above. The Ruahine shell is probably new, but I hesitate to found a new species on a single dead shell, particularly as the differentiating characters in the Ruahine specimen may not prove to be constant when a larger series is available. From *urnula* the Ruahine shell differs in being glossy, having the malleations almost obsolete and the radial striae more pronounced, particularly towards the suture.

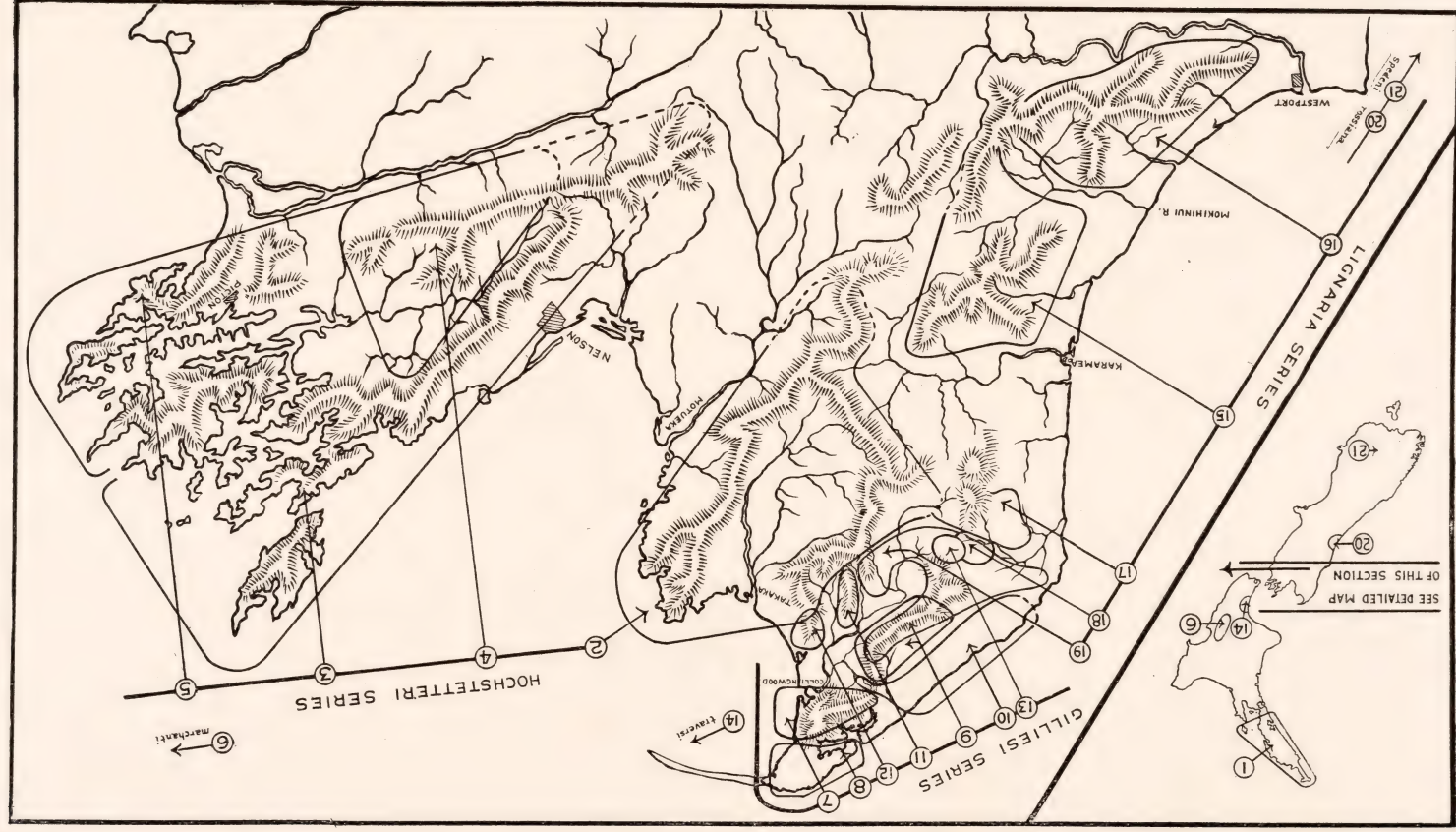
As the result of further collecting I now doubt the record in my 1930 paper (P. 52) of *urnula* from the South Island. These specimens, which were poorly preserved, were from Monkeyface, a mountain of over 2000 feet, 15 miles due west of Kaikoura Peninsula; most likely they are *edwardi*.

DISTRIBUTIONAL PROBLEMS.

It would seem that an interesting divergence of specific groups has taken place in the Goulard Downs area in West Nelson. The West Coast *lignaria* series culminates in *annectens*, *mouatae* and *superba*, but the *gilliesi* series which is distributed around both sides of the Aorere Valley, merging at the head in the Goulard Downs, shows relationship to the *lignaria* series in having parietal granulations such as are found in *annectens* and are obsolescent in *mouatae*; also the typical axial banding of the *lignaria* series is well shown in *jamesoni* from the Goulard Downs which in other respects, particularly in the small depressed shell is a true member of the *gilliesi* series. The *gilliesi* series culminates in *traversi*, a North Island species. On the other hand the unicoloured *superba* closely approaches the *hochstetteri* series which extends eastward into Marlborough and has a North Island relative in *marchanti* from the Ruahine Range. In this one small area, the Goulard Downs, which is a plateau of over 2000 feet elevation, there is a divergence, or possibly a convergence, of three of the four specific groups of *Paryphanta*. The sole New Zealand member of the fourth series, *P. busbyi*, shows no close resemblance to the other three, and it is restricted to the North Auckland Peninsula and adjacent islands, where it is isolated from the nearest member of the other groups by some hundreds of miles.

Undoubtedly many more species remain to be discovered before the complete series of forms is made known. Thanks to an enthusiastic band of local collectors the West Nelson species and subspecies are fairly completely known, but large gaps in the apparent sequence is indicated in Westland and Otago, between the isolated occurrences of *rossiana* and *spedeni*. Also there should

PLATE 10.



be further species of the *hochstetteri* series running north-east from the Ruahine Range, where *marchanti* occurs, along the East Coast mountain systems (see Plate 10).

I have had descriptions of large snails from three localities, indicating connecting links in the probable distribution outlined above, but so far have not been able to secure specimens. These are: (1) a species from the coastal range between Greymouth and Westport, (2) a species from a ridge behind Martin's Bay to the north of Milford Sound, and (3) near the East Cape Lighthouse. Unfortunately the vegetation has since been cleared from the location of the third species, and it is possible that there are now no specimens of it in existence.

KEY TO PARYPHANTA DISTRIBUTIONAL AREAS IN
NEW ZEALAND.

- | | |
|--|-----------------------------|
| (a) BUSBYI series (typical). | 11. <i>P. compta</i> . |
| 1. <i>P. busbyi</i> . | 12. <i>P. fallax</i> . |
| (b) HOCHSTETTERI series. | 13. <i>P. jamesoni</i> . |
| 2. <i>P. hochstetteri</i> . | 14. <i>P. traversi</i> . |
| 3. <i>P. hochstetteri obscura</i> . | (d) LIGNARIA series. |
| 4. <i>P. hochstetteri consobrina</i> . | 15. <i>P. lignaria</i> . |
| 5. <i>P. hochstetteri bicolor</i> . | 16. <i>P. unicolorata</i> . |
| 6. <i>P. marchanti</i> . | 17. <i>P. annectens</i> . |
| (c) GILLIESI series. | 18. <i>P. mouatae</i> . |
| 7. <i>P. gilliesi</i> . | 19. <i>P. superba</i> . |
| 8. <i>P. gilliesi subfusca</i> . | 20. <i>P. rossiana</i> . |
| 9. <i>P. gilliesi montana</i> . | 21. <i>P. spedeni</i> . |
| 10. <i>P. gilliesi kahurangica</i> . | |

FAMILY PARYPHANTIDAE.

(Synopsis of the New Zealand members of the family.)

Genus 1—RHYTIDA Albers 1860. (Type: *HELIX GREENWOODI* Gray.)

1. *R. greenwoodi* (Gray 1850). Whangaroa to Nelson.
2. *R. stephenensis* Powell 1930. Stephen Island, Cook Strait.
3. *R. dunniac* (Gray 1840). Kaitaia to Thames.
4. *R. tarangaensis* Powell 1930. Taranga, Hen and Chickens Islands.
5. *R. pycrofti* Powell 1932. Poor Knights Islands.
6. *R. duplicata* Suter 1904. Cape Maria van Diemen to North Cape.
7. *R. mcesoni* Suter 1891. Nelson and Marlborough.
8. *R. patula* Hutton 1883. Greymouth to West Nelson.
9. *R. citrina* Hutton 1883. Greymouth to Buller River.
10. *R. otagoensis* Powell 1930. Southland.
11. *R. australis* Hutton 1883. Stewart Island.
12. *R. spelaca* Powell 1933. Near Cape Kidnappers (sub-fossil).

Genus 2—PARYPHANTA Albers 1850. (Type: *NANINA BUSBYI* Gray.)

(a) BUSBYI series (typical).

1. *Paryphanta busbyi* (Gray 1840). North Auckland Peninsula.

(b) HOCHSTETTERI series.

2. *P. hochstetteri* (Pfeiffer 1862). Pikiikiruna-Tasman and Haupiri Ranges, Nelson.
3. *P. hochstetteri obscura* Beutler 1901. Western Marlborough Sounds.
4. *P. hochstetteri bicolor* Powell 1930. Eastern Marlborough Sounds.
5. *P. hochstetteri consobrina* Powell n. subsp. Mt. Duppa, Marlborough and vicinity.
6. *P. marchanti* Powell 1932. Ruahine Range.

(c) LIGNARIA series.

7. *P. lignaria* Hutton 1888. Karamea to Mokihinui River, West Nelson.
8. *P. annectens* Powell n. sp. Gunner Downs, West Nelson.
9. *P. mouatae* Powell n. sp. Goulund Downs, West Nelson.
10. *P. superba* Powell 1930. Eastern side of Aorere Valley, southern part of Whakamarama Range and across the Goulund Downs to Rocks Point, West Nelson.
11. *P. unicolorata* Powell 1930. Mokihinui River to Westport, West Nelson.
12. *P. rossiana* Powell 1930. Ross, Westland.
13. *P. spedeni* Powell 1932. East Dome, Southland.

(d) GILLIESI series.

14. *P. gilliesi* Smith 1880. Northern end of Whakamarama Range, West Nelson.
15. *P. gilliesi kahurangica* Powell n. subsp. Westhaven to Kahurangi Point, West Nelson (coastal).
16. *P. gilliesi montana* Powell n. subsp. Whakamarama Range, south of Kaituna-Patarau break.
17. *P. gilliesi subfusca* Powell 1930. North side of Westhaven Inlet (coastal).
18. *P. compta* Powell 1930. Eastern side of Aorere Valley, West Nelson.
19. *P. jamesoni* Powell n. sp. Goulund Downs, West Nelson.
20. *P. fallax* Powell 1930. Ngarino and Onekaka Ridges, West Nelson.
21. *P. traversi* Powell 1930. Levin, North Island.

Genus 3—WAINUIA Powell 1930. (Type: HELIX URNULA Pfeiffer.)

1. *W. urnula* (Pfeiffer 1855). Rimutaka-Tararua Ranges, North Island.
2. *W. aff. urnula*. Ruahine Range, North Island.
3. *W. clarki* Powell n. sp. Motutaiko Island, Lake Taupo, North Island.
4. *W. edwardi* (Suter 1899). Kaikoura Ranges and Hossack Downs, South Island.

Genus 4—SCHIZOGLOSSA Hedley 1902. (Type: DAUDEBARDIA NOVOSEELANDICA Pfeiffer).

1. *S. novoseelandica* (Pfeiffer 1862): North Island.
2. *S. gigantea* Powell 1930. Gisborne District (sub-fossil), North Island.

Genus 5—DELOS Hutton 1904. (Type: ZONITES CORESIA Gray.)

1. *D. coresia* (Gray 1850). North Island.
2. *D. jeffreysiana* (Pfeiffer 1853). North Island.

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